

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) An apparatus for detecting an IP (Internet Protocol) address on a network including at least a DNS (Domain Name System) server of a device ~~connected to a subnet network~~, comprising:

a search IP address detector for detecting at least one search IP address from IP addresses which are ~~selected from a predetermined number of IP addresses as a unit from possible IP addresses on the subnet network~~; an IP address detector for detecting an IP address of a target device ~~on the subnet network from the at least one search IP address detected~~; and a controller for ~~terminating a subnet network information detection operation either when all possible IP addresses on the subnet network have been selected or when the IP address of the target device has been detected.~~

a predetermined number of IP addresses selected as a unit from possible IP addresses on the network, by sending an ARP (Address Resolution Protocol) request to the IP addresses and receiving an ARP response to the ARP request;

a DNS message transceiver for sending a DNS query message to the at least one search IP address and receiving its response message;

a DNS server detector for identifying a DNS response message from the response message and detecting an IP address of a source DNS server from the DNS response message;

an ICMP message transceiver for sending an ICMP echo request message to the at least one search IP address and receiving its ICMP response message; and

a router detector for detecting an IP address of a source router from the ICMP response message, wherein the ICMP response message is either an ICMP redirect request message or an ICMP time exceed message.

2. (Cancelled)

3. (Currently Amended) The apparatus according to claim [[2]] 1, wherein the IP address detector further includes a service detector for detecting an IP address of a device providing a service other than services of the DNS server and the router.

4-5. (Cancelled)

6. (Currently Amended) The apparatus according to claim [[4]] 1, wherein the DNS query message is a message with resetting QR bit of DNS protocol header, which is a message of at least one type selected from a group of standard query, inverse query, server status request and update.

7-10. (Cancelled)

11. (Currently Amended) A method for detecting an IP (Internet Protocol) address on a network including at least a DNS (Domain Name System) server of a device connected to a subnet network, comprising:

~~selecting IP addresses in as a unit of a predetermined number of IP addresses from possible IP addresses on the subnet network; detecting at least one search IP address from a selected set of IP addresses; detecting an IP address of a target device from the at least one search IP address detected; and terminating a subnet network information detection operation either when all possible IP addresses on the network have been selected or when the IP address of the target device has been detected.~~

detecting at least one search IP address from IP addresses which are a predetermined number of IP addresses selected as a unit from possible IP addresses on the network, by sending an ARP (Address Resolution Protocol) request to the IP addresses and receiving an ARP response to the ARP request;

sending a DNS query message to the at least one search IP address and receiving its response message;

identifying a DNS response message from the response message and detecting an IP address of a source DNS server from the DNS response message;

sending an ICMP echo request message to the at least one search IP address and receiving its ICMP response message; and

detecting an IP address of a source router from the ICMP response message, wherein the ICMP response message is either an ICMP redirect request message or an ICMP time exceed message.

12-13. (Cancelled)

14. (Currently Amended) A program instructing a computer to a network, including at least a DNS (Domain Name System) server, ~~subnet network~~ information detection operation for detecting an IP (Internet Protocol) address of a device connected to a ~~subnet network~~, comprising the steps of:

~~selecting IP addresses in unit of a predetermined number of IP addresses from possible IP addresses on the subnet network; detecting at least one search IP address from a selected set of IP addresses; detecting an IP address of a target device from the at least one search IP address detected; and terminating a subnet network information detection operation either when all possible IP addresses on the subnet network have been selected or when the IP address of the target device has been detected.~~

detecting at least one search IP address from IP addresses which are a predetermined number of IP addresses selected as a unit from possible IP addresses on the network, by sending an ARP (Address Resolution Protocol) request to the IP addresses and receiving an ARP response to the ARP request;

sending a DNS query message to the at least one search IP address and receiving its response message;

identifying a DNS response message from the response message and detecting an IP address of a source DNS server from the DNS response message;

sending an ICMP echo request message to the at least one search IP address and receiving its ICMP response message; and

detecting an IP address of a source router from the ICMP response message, wherein the ICMP response message is either an ICMP redirect request message or an ICMP time exceed message.

15-16. (Cancelled)